

tion of the histological features of the two ears concerned. On the affected side, all neural elements in the cochlea had disappeared apart from a few scattered and atrophic members of the spiral ganglion and some neurilemmal remnants. All other features of the affected cochlea, the rods, and hair cells of Corti's organ, Reissner's and the tectorial membrane, the stria vascularis, and the capillaries with contained fresh blood cells, were perfectly preserved and indistinguishable morphologically from these structures as found in the opposite unaffected ear, in which, however, the ganglion cells and other neural elements were present in normal numbers and preservation. No abnormalities were present in the middle or external ear on either side.

Since thus the only demonstrable histological difference between the two ears was the absence of neural elements upon the side exhibiting a conspicuous and carefully attested absence of electrical response, it is considered that the experiment described furnishes striking evidence, though of a purely morphological character, in support of the view that the cochlear potential changes constituting the Wever and Bray phenomenon are of neural origin.

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¹ Kaida, Y., *Jap. J. Med. Sci.*, 12, 1, No. 2, 237; 1931.

Wing Pattern in Butterflies

THE genus *Lethe* (Lepidoptera, Satyridæ) belongs to the largest in its family and is therefore of considerable interest as to the dependence of its wing-pattern upon the general Nymphaloid prototype established by one of us¹. In spite of the fragmentary character of materials at our disposal, we have been able to ascertain that the above prototype represents a basis of the wing-pattern of *Lethe*, just as is the case in a number of other genera of Nymphaloid families².

Besides this main fact, several directions of wing pattern evolution have been studied in *Lethe* by the method of comparative morphological series, and some remarkable processes discovered. Perhaps the most striking of them is the group of processes culminating in the wing pattern of *Lethe argentata*. A number of dislocations, ruptures, coalescences and other modifications affecting the prototype components result in the fact that the general appearance of *argentata* pattern reminds one in a way of that of the swallow-tail *Papilio podalirius*, though the homologies of the two are, of course, very different. A very demonstrative example of the 'destruction' of prototype stripes and spots by the light interspaces lying between them has been discovered, and some other interesting phenomena recorded.

A paper dealing with the above data is now in press in the *Acta Zoologica*.

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¹ B. N. Schwanwitsch, *Proc. Zool. Soc. London*; 1924.

² B. N. Schwanwitsch, *Zeit. Morph. Oekol. Tiere*, 13; 1929. 21; 1931. B. N. Schwanwitsch, *Trans. Zool. Soc., London*, 21; 1930.

Sparrows and Bees

THE weather of the first fortnight of July 1934 was abnormally hot and dry, which condition may account for the following interesting observations made on two hives of bees, in the garden of the Convent of Notre Dame, Ladywood, Milngavie, near Glasgow.

One hive had not swarmed, and was very strong. Drones were leaving it during the middle of the day in fairly good numbers. They did not seem to have power of flight, due perhaps to the fact that worker bees had given them an injection or starved them. (This onset of what looked like preparation for winter conditions may have been induced by lack of moisture to form a sufficient quantity of nectar. The hive became normal when damper weather returned.)

Sparrows were evidently suffering from the drought, and consequently took advantage of the helpless condition of the drones to pounce upon them, kill them, much as a bird does a large worm, eat them, and especially one pair of birds, feed their young, still in the nest, under the roof of the house. They then began to attack and carry off the worker bees, catching them on the wing, or as they fell heavily laden to the ground, before they had time to rise. Both cock and hen did this, but the hen was especially daring. She perched on a vertical rod in front of the hive, and dived on to the alighting board time after time and never failed to carry off a bee. The hive was a very busy one, so it was fairly easy to secure a victim, on account of the crowded condition of the alighting board.

An improvised netting protection failed to deter the depredations of the sparrows, who crept under and went on. Some bread and milk and other dainties placed nearby at last tempted them away, and with the onset of moist weather they eventually abandoned the attack.

The sparrows made no attempt to go to the second hive, which was weaker, having thrown off two big swarms. Since there were fewer bees going in and out, they were less easy to secure, and a miss might have aroused the ire of the rest and brought out an angry attacking force.

The bees are French black or grey like the British. Though the stocks originally consisted of one Dutch, and the other French, the Dutch seem to have disappeared and only French remain.

SISTER VERONICA.

Notre Dame,
Dowanhill,
Glasgow.
July 30.

Design of Theodolite Axes

THE 'Wild precision theodolite'—a light-weight type of primary triangulation instrument—is well known for the ingenuity and compactness of its design as well as for the superb workmanship exhibited in its construction. The couplings of the instrument mechanism, however, are designed on machine tool principles, and although the tolerances on the cylindrical fits of the axes are very small, a recent investigation by J. L. Rannie and W. H. Dennis¹ of the Geodetic Survey of Canada, Department of the Interior, Ottawa, has shown that the performance of a number of these instruments was not satisfactory.

Many consider that the highly accurate perform-